CLAIMS

1. An optical attenuator for attenuating optical signals in an optical path, comprising:

an optical splitter for splitting an input optical signals from an input fiber into two portions, one portion of the input optical signals being transmitted to an attenuating element and a second portion being transmitted to a first detector;

an output port for splitting attenuated optical signals into two portions, one portion of the attenuated optical signals being transmitted to an output fiber and a second portion being transmitted to a second detector; and

an attenuating element for attenuating the input optical signals, the attenuating element being driven by a drive device in response to signals from the first detector and the second detector; wherein

the first detector is positioned to receive said second portion of the input optical signals and the second detector is positioned to receive said second portion of the attenuated optical signals.

2. The optical attenuator as claimed in claim 1, wherein the optical splitter comprises a ferrule and a GRIN lens.

3. The optical attenuator as claimed in claim 2, wherein the ferrule retains an end of the input fiber and an end of a second fiber, and said second fiber receives the second portion of the input optical signals.

4. The optical attenuator as claimed in claim 1, wherein the output port is a collimator.

5. The optical attenuator as claimed in claim 2, wherein the GRIN lens has a first surface coated with an antireflection film and a second surface coated with a

beam splitter film.

6. The optical attenuator as claimed in claim 1, wherein the first detector and the second detector respectively include a photodiode.

7. An optical attenuator for attenuating signals in an optical path comprising:

an optical splitter including a ferrule and a GRIN lens for splitting an input optical signals from an input fiber into two portions, one portion of the input optical signals being transmitted to an attenuating element and a second portion being transmitted to a first detector;

an output port for splitting attenuated optical signals into two portions, one portion of the attenuated optical signals being transmitted to an output fiber and a second portion being transmitted to a second detector; and

an attenuating element for attenuating the input optical signals, the attenuating element being driven by a drive device in response to signals form the first detector and the second detector; wherein

the first detector is positioned to receive said second portion of the input optical signals and the second detector is positioned to receive said second portion of the attenuated optical signals.

8. The optical attenuator as claimed in claim 7, wherein the ferrule retains an end of the input fiber and an end of a second fiber, and said second fiber receives the second portion of the input optical signals.

9. The optical attenuator as claimed in claim 7, wherein the output port is a collimator.

10. The optical attenuator as claimed in claim 7, wherein the GRIN lens has a first surface coated with an antireflection film and a second surface coated with a

beam splitter film.

11. The optical attenuator as claimed in claim 7, wherein the first detector and the second detector respectively include a photodiode.

12. An optical attenuator comprising:

an input collimator including an input collimator with a first GRIN lens and a first ferrule, main and sample input fibers retained in the first ferrule, a beam splitter film applied on the said first GRIN lens;

an output collimator including an output collimator with a second GRIN lens and a second ferrule, man and sample output fibers retained in the second ferrule, a beam splitter film applied on said second GRIN lens;

an input detector connected to a distal end of said sample input fiber;

an output detector connected to a distal end of said sample output fiber; and

an attenuation element interrupting a light path defined between said input GRIN lens and said output GRIN lens; wherein

said attenuation element is controllable to move according to detection results from both said first and second detectors.